Space Weather Forecast

Issued on Wednesday, 09 August 2023 at 13:04 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Minor ongoing solar radiation storm waning. Slight chance of isolated Minor/Moderate radio blackout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity is Low. The strongest Common class flare at 08/1810 UTC originated from a sunspot group located in the southwest quadrant of the visible solar disc. Seven sunspot regions are in evidence on the Earth-facing solar disc, with the majority of the regions small, simple and stable, with little overall change observed in the past 24 hours. No Earth-directed CMEs have been observed in available coronagraph imagery in the period.

Solar Wind / Geomagnetic Activity: The solar wind, as measured at L1 by ACE and DSCOVR spacecraft observatories, was indicative of a weakening solar wind, which started at mostly slightly elevated levels with a peak of 514 km/s at 08/1801 UTC, before drifting towards Slow levels at around 400 km/s . The magnetic field has been weak throughout in addition to weak levels of the all-important north-south component. This gave Quiet levels of geomagnetic activity.

Energetic Particles / Solar Radiation: Proton flux showed a response to the Strong-class X-ray flare from 07 Aug with observed levels remaining above the S1 Minor Solar Radiation storm threshold.

Four-Day Space Weather Forecast Summary

Solar Activity: Low levels of solar activity are anticipated, with only a slight chance of further Moderate class flares. The greatest risk for this occurring is probably from a sunspot region located in the northeast quadrant and currently approaching centre-disc.

Solar Wind / Geomagnetic Activity: No fast winds feature in the forecast, and there have been no new modelled Earth-directed CMEs in the past 24 hours, so solar winds will probably remain close to the Slow to slightly elevated level of 400 km/s in coming days. Geomagnetic activity mostly Quiet throughout the period, with a chance for Unsettled to Active intervals probably during the remainder of Day1 (9 Aug).

Energetic Particles / Solar Radiation: The high energy (greater than 10 MeV) proton flux should show a decreasing risk of further breaches of S1 as the primarily responsible region rotates further around the far side, falling from Expected to a near background. Slight Chance by the second half of the current UTC working week.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	20	20	30
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	Yes	100	50	10	5
Very Active	≥ S3 *	No	5	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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